

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A device for detecting a road traveling lane, ~~from images on a road surface continuously picked up by image pickup means~~, comprising:

image pickup means for picking up images on a road surface continuously,

edge point detection section means for detecting a plurality of edge points in a contour on the image;

edge histogram producing section means for producing a vertical edge histogram for horizontal elements of the plurality of edge points detected by said edge point detection section means;

block marking line determination section means for determining presence and absence of a block-like marking line on the basis of periodicity of distribution and a combination of distributions of plus edges and minus edges in the vertical edge histogram produced by said edge histogram producing section means, and defining a region where said block-like marking line is present;

lane boundary edge detection section means for detecting vertical edge points present outside of a center of said traveling lane, in the region where said block-like marking line defined by said block marking line determination section means is present; and

lane boundary position defining section means for defining a position of a curve fitted to the vertical edge points detected by said lane boundary edge detection section means, as a position of a boundary of said traveling lane;

wherein said lane boundary edge detection section detects the edges of the lane boundary in an interval between neighboring block lines, on the basis of such a relationship that a vertical region between a peak of a plus edge histogram and a peak of a minus edge histogram corresponds to the interval between neighboring block lines, in said vertical edge histogram produced by said edge histogram producing section.

2. (currently amended): A device for detecting a road traveling lane as described in claim 1, wherein said edge point detection section ~~means~~ detects the plurality of edge points on the image picked up by said image pickup means, and makes a reverse projection of coordinate data of the plurality of edge points on a 3-dimensional road surface coordinate, to produce said plurality of edge points.

3. (canceled).

4. (currently amended): A device for detecting a road traveling lane as described in claim 1, wherein said lane boundary position defining section ~~means~~ applies a curve including a plurality of straight lines to the vertical edge points detected by said lane boundary edge detection section ~~means~~, to achieve a curve-fitting.

5. (currently amended): A device for detecting a road traveling lane as described in claim 4, wherein said lane boundary position defining section ~~means~~ achieves said curve-fitting by means of one of RANSAC, Hough conversion and least square method.

6-9. (canceled).

10. (currently amended): A device for detecting a road traveling lane, ~~from images continuously picked up on the road by image pickup means,~~ comprising:

image pickup means for picking up images on a road surface continuously;

edge point detection section means for detecting a plurality of edge points in a contour on the image;

vertical edge histogram producing section means for producing a vertical edge histogram for horizontal elements of the plurality of edge points detected by said edge point detection section means;

block marking line determination section means for determining presence and absence of a block-like marking line on the basis of periodicity of distribution and a combination of distributions of plus edges and minus edges in the vertical edge histogram produced by said vertical edge histogram producing section means;

horizontal edge histogram producing section means for producing a horizontal edge histogram for vertical elements of the plurality of edge points detected by said edge point detection section means; and

lane boundary position defining section means for determining a plurality of vertical edge points, whose vertical edge histogram varies periodically in response to traveling of said vehicle, and which were determined to be closest to a center of said traveling lane on the basis of the horizontal edge histogram produced by said horizontal edge histogram producing section means, and defining a position of a curve fitted to the plurality of edge points present outside of the center of said traveling lane, as a position of a boundary of said traveling lane.

11. (currently amended): A device for detecting a road traveling lane as described in claim 10, wherein said edge point detection section ~~means~~ detects the plurality of edge points on the image picked up by said image pickup means, and makes a reverse projection of coordinate data of the plurality of edge points on a 3-dimensional road surface coordinate, to produce said plurality of edge points.

12. (currently amended): A device for detecting a road traveling lane as described in claim 10, wherein said lane boundary position defining section ~~means~~ applies a curve including a plurality of straight lines to the vertical edge points detected by said lane boundary edge detection section ~~means~~, to achieve a curve-fitting.

13. (currently amended): A device for detecting a road traveling lane as described in claim 12, wherein said lane boundary position defining section ~~means~~ achieves said curve-fitting by means of one of RANSAC, Hough conversion and least square method